



Part Three:

Trees as Community Infrastructure--The Values of Urban Forests

Legends and myths stretching back to the dawn of civilization color human perceptions of forests.

Long viewed as a dark and wild place where danger lurks—in the form of marauding beasts and other menaces—forests have also been regarded by humans as inextinguishable sources of natural resources.

Perhaps owing to these biases, the record of American forest stewardship is not as good as it could have been. Being an agrarian, rather than a forest-dwelling people, the first permanent European settlers regarded the lush forests that stretched back from the coast as obstacles to their survival and progress. While they learned much about the forests from the native peoples who dwelled comfortably within them for thousands of years, the newcomers put this knowledge to use to exploit and dominate, rather than subsist and co-exist.

European settlers on American shores regarded forests first as an impediment to progress, later as an endless, exploitable resource.

The forest edge, or frontier, came to be seen as a line that, quite literally, had to be repelled in advance of human expansion outward from the initial beachhead of coastal settlements. The "forest primeval" had to be cleared away before the primary, life-sustaining, business of farming could be undertaken. Later, settlers in the new land increasingly looked to forests for timber to build homes and ships, firewood for warmth, saps and resins for waterproofers and other chemicals, pulp for papermaking, and later other industrial products. Forests were seen less as sacred places to be sustained and conserved than as a providently provided boundless resource to be exploited and consumed.

Benefits of trees in the urban environment include:

- **Reduction/detention of surface water runoff and reduction of flood risks**
- **Reduction of soil erosion and sedimentation of water bodies**
- **Absorption of water and air pollutants**
- **Provision of wildlife habitat and recreational opportunity**
- **Sequestration of atmospheric carbon—countering the greenhouse effect and global warming**
- **Enhancement of property values**
- **Micro-climate control and reduction of energy costs**
- **Abatement and buffering of noise**
- **Community aesthetics and links to the past--a “sense of place”**
- **Psychological and sociological impacts, including lessening of stress and reduction of crime**

Gradually, through costly and painful experience, Americans learned the folly underlying the view of forests as limitless. While renewable, forests depleted beyond their yield will not regenerate. Human activities can disrupt forest ecosystems to the point where they crash, or are so impaired that opportunistic pests or diseases can ravage the forest. Only after environmental tragedies, like the “dust bowl” of the 1930s, did the wisdom of Aldo Leopold and other conservationists come to be fully understood by the forest products industry and widely appreciated by the public.

Today, Americans have a better relationship with the continent’s forests, but new challenges, including the impacts of urbanization, require constant vigilance to maintain the balance between our utilitarian and ecological views of forest values.

Urban and Community Forest Values

Forests and trees---by their mere existence---provide a wealth of benefits to our urban society.

Because forest values were for so long measured only by the worth of the products that could be commercially extracted from them, generally only large contiguous stands of pole timber or vast tracts of pulp trees were regarded as possessing significant economic worth. Sadly, vestiges of the “frontier” view of trees may still linger: when they stand in the path of human use or development of the environment, trees are often seen as a ubiquitous, low-value commodity. The worth of community forests and urban trees continues to be neglected or undervalued in most private market transactions and development decisions.

This situation should no longer prevail in the face of the careful and systematic documentation of the myriad of values that trees provide to urban communities. Urban forestry researchers have documented a multitude of functions and benefits that trees afford society. The economic values of trees are reflected in enhanced property values, reduced energy costs, mitigated pollution costs, reduced flood damages, and other pure “dollars and cents” pay-backs.

Environmental Values

Trees form a “green infrastructure” for communities. They reduce both air and water pollution, capture “greenhouse gases,” and save energy by moderating climatic extremes.

Air pollution control

Since the earliest dense urban settlements, trees and greenspace have been thought of as the “lungs of the city”—providing a breathing space for urban masses, and the source of refreshing breezes to waft away the smoke and odors of urban commerce. In 1844, the New York City Board of Health recognized trees as “improvers of city air” and recommended their planting.¹

Recent research has shown the “*trees as lungs*” metaphor to be far more literal than figurative. Trees and their supporting soils strip pollutants from the passing air via physical and chemical processes, reducing such noxious pollutants as particulates, nitrogen oxides, carbon monoxide, ozone, sulfur dioxide and halogens (chlorine and fluorine).

Trees have been shown capable of stripping from 9 to 13 percent of total suspended particulates from air passing over their branches.² Based upon established values for pollutant absorption by trees, a 525-acre forested park in Chicago was estimated to provide air pollution reductions equivalent to traditional emissions controls costing \$136 per day.³ Regional analyses by *American Forests*, a private group, have estimated the value of air pollution attenuation by urban forests for four major metropolitan areas. Annual benefits ranged from \$8 million in Milwaukee, WI to over \$30 million in

Urban forests are today recognized as providing a myriad of values and benefits to communities.

Trees clear the air we breathe.

¹ Clouston, B. and Novell, A. “The tree and the city” in Clouston, B. and Stansfield, K. eds. Trees in Towns. Architectural Press. London. 1981.

² Dochinger, Leon. “Interception of airborne particles by tree plantings” Journal of Environmental Quality. 9 (2) 1980.: 265-268.

³ McPherson, E.G. “Environmental benefits and costs of the urban forest” in Rodell, P.D., (ed.) Proceedings of the Fifth National Urban Forest Conference, Los Angeles, Nov. 1991. Washington, DC American Forestry Association. PP 52-54.

Austin, TX.⁴ Forest pollution-cleansing effects may be optimized through maintenance of large tracts of stratified forest, or management of forested greenbelts of 150 meters (~500 feet) or more in width.⁵

Water pollution attenuation

As they do for the air, trees cleanse flowing waters of their pollution burden. Forested areas provide a pervious surface where surface runoff can infiltrate and be purified of contaminants via contact with soil micro-organisms. Trees and other natural vegetation also decrease the velocity of runoff, reducing the potential for soil erosion and resulting sedimentation of water bodies. In urban areas, runoff from storms collects contaminants--oils and grease from highways, pet waste, sand and salt from streets and construction sites. In rural areas, agricultural practices may contaminate surface runoff with animal wastes, sediment, and pesticides and herbicides. In both urban and agrarian settings, vegetated buffers--or *greenways*--of trees and other plants along watercourses can intercept and absorb contaminated surface runoff and remove pollutants before they reach water bodies.

Trees clean our waters



⁴ American Forests. The State of Our Urban Forests: Assessing Tree Cover and Developing Goals. (White paper) Washington, D.C. September 1997. P. 2.

⁵ Smith, W.H. "Urban Vegetation and Air Quality". Proceeding of the National Urban Forestry Conference. Syracuse, SUNY. 1978. Pp. 284-305.

Runoff control

Using trees to reduce or avoid runoff makes economic sense: an analysis of urban forests in Chicago estimated that each mature urban street tree prevents or absorbs 327 gallons of runoff per year, providing an estimated \$6.70 in annual savings (avoided costs for runoff control) per tree.⁶ A similar study of Salt Lake City's urban forest found that its trees reduced runoff by 17 percent or 11.3 million gallons, and, based upon a calculated cost of \$0.02 per gallon spent by municipalities to manage storm runoff and flooding, yielded an implied runoff-avoidance value of \$226,000 for each storm event.⁷ Other research has attributed 4 to 6 percent reductions in total runoff to the interception and evaporation of rainwater by urban tree canopies.⁸ *American Forests* estimates the aggregate value of stormwater management of the existing tree cover of the nation's cities to be \$400 billion annually, a figure that could be increased by \$100 billion annually through additional planting.⁹

Trees reduce runoff and floods



Climatic Benefits

Trees are efficient natural “chemical factories” whose principal products are oxygen, which they release to the atmosphere, and carbon, which they strip from the air and store or “fix” in their woody roots, trunks, and branches. Atmospheric carbon---a by-product of the burning of fossil fuels---has steadily increased throughout the industrial age and has been associated with the global climatic warming trend known as the “greenhouse effect.” By absorbing atmospheric carbon, trees help offset global warming, increasingly accepted by reputable scientific bodies as a threat to global climatic equilibrium and environmental sustainability. Estimates of the carbon sequestered by the nation's urban forests range to

Trees sequester atmospheric carbon, mitigating the “greenhouse effect” and global warming

⁶ McPherson, E.G., Nowak, D.E.J. and Rowntree, R.A. Chicago's Urban Forest Ecosystem: Results of the Chicago Urban Forest Climate Project. USDA. Northeast Forest Experiment Station. 1994. P. 130.

⁷ Henson, S. L. and Roundtree, R. A. “Influence of urban forest cover on radiation temperature and runoff in Salt Lake Basin, Utah” in Society of Amer. Foresters. Forester's Future: Leaders or Followers: Proceedings 1985 SAF National Conv. Pp.412-416.

⁸ Sanders, R.A. “Urban Vegetation Impacts on the Hydrology of Dayton, Ohio”. *Urban Ecology*. 9:361-376. 1986.

⁹ *American Forests*. Op. Cit. P.3

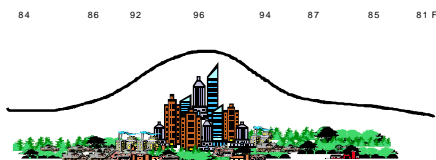
800 million tons, having an economic value of \$22 billion (based upon a \$28/ton control cost).¹⁰

Energy Benefits

Trees save energy and reduce heating and cooling costs

Planted strategically, trees can reduce the energy and cost necessary for building heating and cooling. Trees shade buildings from summer sun and, through their natural evapo-transpiration processes, also directly cool the air adjoining buildings. Modeling by the U.S. Forest Service and Environmental Protection Agency indicates that well-positioned trees can shave between 10 and 50 percent from an average residence's annual cooling costs. Trees sited to shelter buildings from winter winds can reduce energy needed for heating, although to a lesser degree than for cooling. A study done for the town of Frederick, MD by *American Forests* estimated the direct energy savings provided by the city's existing tree resources at \$1 million per year. An additional \$5 million/year in potential direct and indirect savings were estimated if trees were more strategically planted.¹¹

Trees reduce the urban heat island



The presence of trees in cities also saves energy on a metropolitan-wide level by moderating the *urban heat island* effect. The retention (or planting) of trees in cities counters the heat generation, collection, and storage effects of roads, buildings, and other hard urban surfaces. Added to the auto exhausts, industry, and other heat sources of cities, the heat island effect can spike the outdoor temperatures of urbanized areas 5-9°F above the surrounding countryside. Researchers have estimated the energy *penalty*, or added cost, of the urban heat island at \$40,000 *per hour* in Washington DC to \$150,000 *per hour* in Los Angeles during summer months.¹² By shading structures and paved surfaces that collect and store energy from the sun and combustion processes, trees offset these impacts and costs.

¹⁰ Rowntree, R.A. and Nowak, D.J. "Quantifying the role of urban forests in removing atmospheric carbon dioxide". *Journal of Arboriculture*, 17 (10): 269-275. 1991.

¹¹ American Forests & National Assoc. of Homebuilders. *Building Greener Neighborhoods: Trees as part of the plan*. 1995. p. 9

¹² Ibid.

Noise Attenuation

Cities are increasingly noisy places. Traffic, aircraft, manufacturing processes, construction activities, heating and cooling systems, public events, and the tastes of some residents for enjoying music at maximum volume can all create noise levels disruptive to the “peace and quiet” of the community, and may even produce transient sound levels that are downright unhealthy.

Trees quell urban noise levels

While they cannot reduce the sources of noise pollution, trees can attenuate the intensity and transmission of noise through the environment. Trees reduce sound directly by reflection and absorption of its energy, and also mask objectionable sounds with the gentle rustling of branches and leaves in the wind. A 100-foot-wide tree buffer has been shown to be capable of reducing noise levels by 6 to 8 dBa.¹³ Natural vegetated buffers have also been shown to be effective as adjuncts to physical barriers constructed to reduce highway noise.¹⁴



Wildlife values

While recent concerns over the spread of rabies and the appearance of predator species such as coyotes in some locales may temper public enthusiasm, past studies have shown an appreciation among urban residents for the presence of birds and other wildlife in their day-to-day lives. A 1980 nationwide survey of wildlife-related recreation found that 55 percent of respondents interact with wildlife near their homes by watching, feeding, photographing, or painting them.¹⁵ Ninety percent of surveyed Seattle park-goers reported that the presence of wildlife enhanced their recreational experience of the park.¹⁶

Trees provide homes for birds and other wildlife in urban areas

13 Leonard, R.E. and Parr, S.B. “Trees as a sound barrier”. Journal of Forestry. 68: 282-283. 1970.

14 Cook, D.I., and Van Haverbeke, D.F. “Suburban noise control with plant materials and solid barriers” Proceedings: Conference on Metropolitan Physical Environment. U.S. Forest Service General Technical Report N-25: 229-233. 1977.

15 Shaw, W.W., Magnum, W.R., and Lyons, J.R. “Residential enjoyment of wildlife resources by Americans” Leisure Sciences. 7(3): 361-375 1985.

16 Dick, H.E. and Hendee, J.C. “Human responses to encounters with wildlife in urban parks”. Leisure Sciences. 8(1): 633-677. 1986.

The abundance and diversity of wildlife in urban areas depends, as it does everywhere, on the availability and quality of habitat—space used for obtaining food, breeding, and shelter. In general, a greater density and diversity of urban vegetation allows greater density and diversity of urban wildlife.

Cultural Values

An affinity for trees may be “hard-wired” into human DNA. Having lived among trees since our evolutionary predecessors descended from them, our species has profound psychological and historical connections to trees.

Social and Psychological Values

Trees soothe our souls

Since before the turn of the century, social reformers have championed the benefits of urban parks and natural areas, on the presumption that such areas offered a “communion with nature,” places for “spiritual renewal” and opportunities for play and sports activities to relieve the pressures, stress and tensions implicit in crowded urban environments. Frederick Law Olmsted saw the main purpose of New York City’s Central Park as providing “natural, verdant and sylvan scenery for the refreshment of town-strained men, women, and children.”¹⁷

Modern social researchers have begun to explore a possible psycho-physiological basis for these presumptions. The research, while limited and tentative, is still tantalizing in many respects. One study found that stressed subjects viewing slides of natural scenes reported reduced feelings of anger, fear, and sadness, and greater positive feelings, compared to those viewing scenes devoid of



¹⁷ Olmsted, F.L., Jr. and Kimball, T. (eds.) Frederick Law Olmsted. Landscape Architect 1822-1903. New York. 1970. P. 523.

greenery.¹⁸ A more intensive study using measures of pulse, skin conductance, and muscle tension found that subjects exposed to scenes dominated by trees had slower heartbeats, lower blood pressures, and more relaxed brainwaves, and recovered faster from stress than those exposed to urban scenes.¹⁹ A nine-year study of hospital surgical patients documented differential responses of those having natural views through their windows compared to similar patients whose windows looked out on brick walls: patients with a treed view had an average of 10 percent shorter recuperative stays and made fewer requests for pain relievers.²⁰

The capacity of trees and greenery to lessen stress and encourage positive social interaction may even extend to reducing aggressive and violent behaviors in cities. A limited study of residents of one public housing project in Chicago contrasted the reported social ties, personal relations, and means of dealing with conflicts with family members and neighbors of residents who lived in treed settings versus those that were devoid of trees. Researchers found that in buildings with trees, residents reported significantly better relations and stronger feelings of unity and cohesion with neighbors, and greater reliance upon more constructive, less violent means of dealing with conflict.²¹ Such captivating findings indicate that, far from being mere amenities, trees may play a role in addressing some of the most vexing social ills facing our urban society.

Trees may reduce aggressive and violent behavior in urban settings

¹⁸ Ulrich, R.S. "Visual landscapes and psychological well being: an ecological perspective". Landscape Research. 4:17-23. 1979.

¹⁹ Ulrich, R.S. "Natural versus urban scenes: Some psychophysiological effects." Environment and Behavior. 13(5): 523-556. 1981.

²⁰ Ulrich, R.S. "View through a window may influence recovery from surgery". Science. 224: 420-421. 1979.

²¹ Sullivan, W.C., and Kuo, F.E. "Trees, aggression, and violence in the home" Proceedings of the 7th National Urban Forest Conference. 1993.

***Trees Connect
Us Across Time***

Heritage Values

Phrases such as “putting down roots” and “solid as an oak” capture the power of trees as icons of stability, permanence, and place. Their stature and longevity allows trees to be powerful links across time and generations, evoking historic events or memorializing persons that have long departed. Individual trees or stands of trees in prominent locations may become landmarks, uniquely distinguishing a community, neighborhood, or place. On an individual level, planting a tree is a singular act of faith in the future. As we watch them grow in stature and grace as they age along with us, there is unique satisfaction in knowing that we have created a legacy benefiting members of the community who will follow us.

Aesthetic and Scenic Values

***Trees beautify
our communities***

Whether within natural or created landscapes, trees provide a variety of aesthetic and scenic benefits in the context of developed communities. Since the City Beautiful Movement in the late 19th century, the presence of greenspace---treed parks, boulevards, town commons, and urban plazas or squares---has been synonymous with a community’s sense of itself and civic pride. Tree-shaded streets convey a distinctive character and aesthetic to residential neighborhoods and to the quality of life of their residents. Similarly, trees and landscaping of private properties can significantly enhance the appearance of the built environment. Landscape architects and land planners who effectively employ trees in their site plans can visually frame and highlight prominent architectural features or landmark structures or, alternately, conceal or camouflage utilitarian, unaesthetic, or blighting influences.



Research has shown that the public appreciates the connection between trees and the beauty of their communities. A public survey done after Hurricane Hugo hit Charleston, SC in 1989 found that, despite widespread structural damage, the majority of residents reported tree damage as the single greatest loss sustained by the community. Similar sentiments

were reflected in surveys of survivors of Hurricanes Andrew (1992 Miami FL), and Frederic (1979 Mobile, AL).²²

Recreational Values

Be it a backyard treehouse, forested greenway trail, or manicured urban park, trees are fundamental to our enjoyment of the outdoors in urban areas. They shade us, offer venues for play, and greatly contribute to the recreational experience by bringing aesthetic, scenic, and natural qualities to the settings we select for outdoor leisure. People appreciate the value-added that trees bring to the recreational experience: a survey of park users in Chicago found a willingness to pay significantly more per visit for a mostly wooded recreational site versus a grassed, but sparsely-treed site.²³

*Trees shape our experiences
of fun outdoors*



Economic Values

Urban and community forests produce real economic value. Trees have a real estate value, but this market or replacement price greatly undervalues the true worth of trees to the community.

*Trees confer a wealth
of values upon
communities that
retain and nurture
them.*

Property Value Enhancement

Economic values from urban and community forests may be realized directly from increased property values (and increased property taxes) resulting from attractively landscaped properties located on tree-lined streets or adjoining public greenspace. An economic statistical analysis of property values in suburban Middletown, R.I. found that significant increases in property values are generated by nearby open space. All things being equal, the analysis found higher average values associated with properties closer to preserved open space. Based

*Trees enhance
property values*

²² Hull, R.B. IV. "How the public values trees". Journal of Arboriculture. 18 (2): 98-101. 1992.

²³ Dwyer, J.F. Schroeder, H.W., Louviere, J.J. and Anderson, D.H. "Urbanites willingness to pay for trees and forests in recreation areas". Journal of Arboriculture. 15 (10): 247-252 (1989)

Homes near parks and greenways sell for a premium

upon the influences on values, the study estimated the potential impacts of protection of new open space on the island. An increase of 12 percent over baseline was estimated for properties situated proximate to (within 400 meters [~1,300 ft.]) a large tract of open space (50 acre greenway).²⁴ Studies of Worcester, MA,²⁵ where homes adjoining a public park were found to sell at a \$2,675 premium over comparable homes 200 feet away from the park, and of greenbelts generally, which found home sales prices dropping \$4.20 for every foot further away from a greenbelt, also document tangible positive impacts on property values associated with proximity to greenspace.²⁶

A 1976 Connecticut study assessing the direct impact of trees on residential property values found that an average 6 percent of property value was attributable to the presence of tree cover on the property.²⁷ A 1983 study of values in a New York town attributed a \$9,500 differential in sales prices to the presence of trees.²⁸

Methodologies are also available for direct valuation of individual trees or collections of trees based upon their physical parameters (trunk size, condition, location, species) or replacement cost. In addition to use in establishing values for property appraisals or insurance claims, these methods may be used to estimate the value of an entire community's tree resources. The value of the Oakland, CA urban forest was set at \$385 million in 1993 using standard tree valuation methods.²⁹

²⁴ Johnston, R.J. The Economic Impact of Open Space on Aquidneck Island, Rhode Island. Technical Manuscript. Narragansett, RI Coastal Resources Center, University of Rhode Island. 1997.

²⁵ More, T.A., Stevens, T., and Allen, P.G. "The economics of urban parks" Parks and Recreation. 17:31-33 (1982)

²⁶ Corrill, M.M. and Cordell, H.K. "The effects of greenbelts on residential property values: Some findings on the political economy of open space". Land Economics 54 (2): 207-217 (1985).

²⁷ Morales, D., Boyce, B.N., and Favretti, R.J. "The contribution of trees to residential property value". ASA Valuation 23: 26-43. (1976).

²⁸ Morales, D.J., Micha, F.R., and Weber, R.L. "Two methods of valuating trees on residential sites". Journal of Aboriculture. 9 (1): 21-24 (1983).¹

²⁹ Nowak, D. J. "Compensatory value of an urban forest: An application of the tree-value formula". Journal of Aboriculture. 19 (3): 139-142. (1993).

Avoided Service Costs

Keeping private land in forests, as opposed to encouraging its development for housing, provides communities with another economic benefit: avoidance of the costs incurred with residential development. Communities, particularly rural towns, have traditionally considered residential growth to be an economically desirable future use for their undeveloped forest land. New homes, the common line of thought went, brought new residents, new tax revenues for municipal coffers, and possibly new jobs as residents spent money in the local economy. A number of recent studies have pointed out that this long-held presumption does not consider the impact of new residential development on municipal expenditures, which can be substantial.

In contrast with residential development, forest land demands little or no municipal services

A study by the Southern New England Forest Consortium, Inc. (SNEFCI) looked at municipal expenditures and tax revenues attributable to three categories of development (residential, commercial/industrial, and open space) in eleven communities in southern New England. It found that, on average, residential development cost municipalities \$1.14 in services for every dollar of tax it generated—a net loss. On the other hand, open space, including forested land, cost communities only \$0.42 in services for every dollar generated—a significant net gain. The contrast for the three rural Rhode Island communities included in the SNEFCI study was even more striking: a cost/revenue ratio of \$1.20 for residential and \$0.38 for open space. (Commercial/industrial land was found to provide substantial net gains for all municipalities studied).³⁰

For three rural Rhode Island communities, the expense/revenue ratio for open space was \$0.38; residential land cost \$1.20 in services for every \$1.00 returned in taxes.

³⁰ Southern New England Forest Consortium, Inc., and Commonwealth Research Group, Inc. Costs of Community Services in Southern New England. Chepachet, RI. 1995.

While this research should not be interpreted as encouraging rural communities to reject all new residential growth, its findings regarding the service cost benefits of forested open space land should be given serious consideration by rural communities as they plan for an optimal balance between open space and future growth.

The Bottom Line: Saving Trees Saves Us Money

With the advent of urban forestry, the net economic contribution of trees is coming to be better quantified and appreciated. Using computer-assisted methodologies, it is now possible to approximate the aggregate economic impact of tree resources on a community-wide, metropolitan, and even global basis.

Computer-assisted methodologies now make it possible to approximate the economic impact of tree resources on a community-wide, metropolitan area, and even global basis.

The net economic worth of environmental services provided by the world's forests is nearly \$5 trillion annually.

Most recently, a collaboration of researchers from around the globe developed an estimate of the economic contribution of the planet's natural systems. This study placed the net economic worth of the environmental services provided by the world's forest biome at U.S.\$4.7 trillion annually³¹.

On a metropolitan level, a comprehensive study modeled the projected costs and benefits of planting and maintaining 95,000 trees around the Chicago metropolitan area over a 30-year period. This research projected that the value of the air pollution attenuation, energy-saving, hydrologic, and other benefits provided by trees would exceed the costs to plant and maintain them by an average of nearly three-to-one. Investments in trees were estimated to yield an average net present value (benefits less costs) of \$402 per tree planted and to have an average payback period of between eight and nineteen years (depending on location, species, and discount rate assumption)³².

³¹ Costanza, R. et al, "The Value of the world's ecosystem services and natural capital", Nature, 5/15/97.

³² McPhearson, E.G., D. Nowak, and R.A. Rowntree (ed). Chicago's urban forest ecosystem: Results of the Chicago Urban Forest Climate Project.

Community forests, while offering many benefits, are not without costs. Planting and maintaining trees requires investment. Trees can produce negative impacts: uprooted sidewalks, disrupted utilities, leaf collection, and tree damages; and these effects all have costs that must be paid by the community and private landowners. While the costs of planting new trees and maintaining existing trees are tangible, requiring outlays by public and private entities; the benefits of trees are often diffuse and enjoyed as “public goods” by society at large.

Although the benefits and values conferred upon communities by trees may be imperfectly reflected in the marketplace, when the multitude of environmental, energy, climatic, socio-psychological, and aesthetic benefits of trees are properly enumerated---the conclusion is clear and compelling: *retaining and enhancing urban tree resources is clearly in the public interest, and investments made in planting and maintaining trees pay handsome returns for the community.*

